REMARKS

The application has been amended to place the application in condition for allowance at the time of the next Official Action.

Claims 26-38 and 44-47 are pending in the application. Claims 26-33, 38, 44 and 47 are withdrawn from further consideration as being drawn to a non-elected species.

Claims 34-37, 45 and 46 are rejected under 35 U.S.C. 112, first paragraph as failing to comply with the written description requirement. This rejection is respectfully traversed.

The position set forth in the Official Action is that Examples 18-20 of the application teaches only a ratio of 1:5, but does not support a ratio of no less than 1/5.

To satisfy the written description requirement, an applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of the invention, and that the invention, in that context, is whatever is now claimed. *Vas-cath, Inc. v Mahurkar*, 935 F.2d 1555, 1563-64, 19 USPQ2d 1111, 1117 (Fed. Cir. 1991). In essence, the applicant cannot claim more than was originally disclosed in the application as filed.

Examples 13-17 and 23 of Tables 4 and 5 on pages 46 and 48 of the application as filed show a flame retardant epoxy resin composition that may be regarded as examples of a lower-limit

case where the ratio of the tetraphenylolethane epoxy resin consisting essentially of an epoxy resin represented by formula (3) to the phenolbiphenylaralkyl epoxy resin of formula (2) is chosen to be 0/5.

Whereas, examples 5-8 on page 44 shows a flame retardant epoxy resin composition that may be regarded as examples of such upper-limit case where the ratio of the tetraphenylolethane epoxy resin consisting essentially of an epoxy resin represented by formula (3) to the phenolbiphenylaralkyl epoxy resin of formula (2) is chosen to be 5/0.

The noted Examples 18-20 of Table 5 may then be regarded as examples of a middle case where the ratio of the tetraphenylolethane epoxy resin consisting essentially of an epoxy resin represented by formula (3) to the phenolbiphenylaralkyl epoxy resin of formula (2) is chosen to be 1/5.

In this view, the specification as filed provides good supporting evidence proving that all the range of 0/5 to 5/0 for the ratio of the tetraphenylolethane epoxy resin consisting essentially of an epoxy resin represented by formula (3) to the phenolbiphenylaralkyl epoxy resin of formula (2) can be chosen to obtain an epoxy resin composition for a semiconductor encapsulation which cure into a product exhibiting excellent flame

retardancy without any flame retardant material nor flame retardant auxiliary.

Accordingly, the specification provides good supporting evidence proving that all the range of 1/5 to 5/0 for the ratio of the tetraphenylolethane epoxy resin consisting essentially of an epoxy resin represented by formula (3) to the phenolbiphenylaralkyl epoxy resin of formula (2) can be chosen to obtain an epoxy resin composition for a semiconductor encapsulation which cure into a product exhibiting excellent flame retardancy without any flame retardant material nor flame retardant auxiliary.

In particular, Figure 1 clearly shows such evidence that the middle cases such as Examples 18-20 are indeed positioned between the lower-limit cases (Examples 13-17) and the upper-limit cases (Examples 5-8).

Therefore, applicants are not claiming more than originally disclosed. Accordingly a comparison of the middle cases such as Examples 18-20 with the lower-limit cases (Examples 13-17) and the upper-limit cases (Examples 5-8) can reasonably convey the technical feature of Claim 34 in question "the ratio of the tetraphenylolethane epoxy resin consisting essentially of an epoxy resin represented by formula (3) to the phenolbiphenylaralkyl epoxy resin of formula (2) is suitably selected within the range of 1/5 to 5/0 (i.e. no less than 1/5)" to one skilled in the relevant art.

Since applicants are not claiming more than was originally disclosed, applicants believe that the written description requirement is satisfied and that the specification as filed conveys with reasonable clarity to those skilled in the art that applicants had possession of the invention at the time the application was filed.

Claims 34-37, 45 and 46 are rejected as unpatentable over Japanese Patent No. 9-268219 in view of Japanese Patent Nos. 57-38814 and 58-150581. This rejection is respectfully traversed.

Independent claim 34 is amended to clarify the recited composition and recites that the composition is an epoxy resin composition for semiconductor encapsulation, which cures into a product exhibiting excellent flame retardancy without any flame retardant material nor flame retardant auxiliary.

The position set forth in the Official Action is that the combination in JP '219 of a phenol-biphenyl aralkyl epoxy resin and phenol-biphenyl aralkyl phenol resin inherently exhibits flame retardancy by virtue of the particular blend of aromatic epoxy resin and the phenolic curing agent.

However, this conclusion is believed untenable for the following reasons.

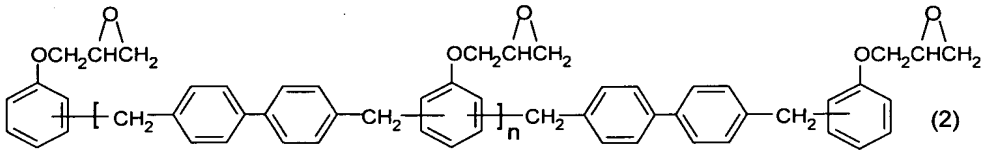
First, the Federal Circuit has held that inherency is based upon what is necessarily present in the art, not what may occur or would result due to optimization of conditions. *In re*

Rijckaert, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993).

Indeed, referring to SHIMIZU et al. USP 5,854,316, which was cited in the Official Action dated January 22, 2003, a cured product from Comparative Example (6) listed in TABLE 2 has good heat resistance, water resistance and toughness, but the cured product from Comparative Example (6) exhibits poor flame retardance of V-2 grade.

Similarly, in OSADA et al. USP 6,160,078, which was cited in the Official Action dated September 14, 2004, while a cured product from epoxy resin composition of Example 1 has good heat resistance, and the cured product also exhibits good flame retardance of V-0 grade, a cured product from epoxy resin composition of Comparative Example 2 has good heat resistance, but the cured product exhibits poor flame retardance "burned". Thus, although flame retardance may occur, it does not necessarily occur.

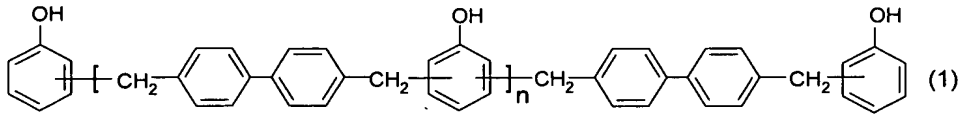
As for cured product of JP '219 having improved flame retardance without any help of flame retardant material or flame retardant auxiliary, JP '219 neither provides any evidence suggesting that the cured product from an epoxy resin composition comprising an epoxy resin (phenol-biphenyl aralkyl epoxy resin) represented by formula (2):



(2)

wherein n = 0 to 10,

a Novolak type phenolic resin represented by formula (1):



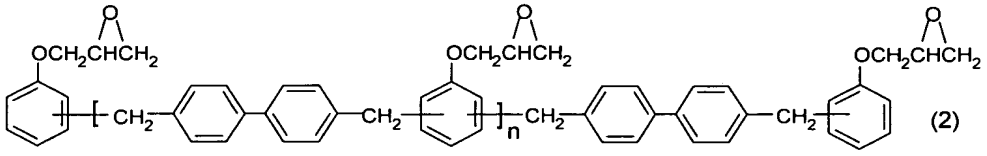
(1)

wherein n = 0 to 10, as an curing agent for said epoxy resin, and 70-90 wt% of silica particle as an inorganic filler will be excellent in flame retardance without flame retardant material or flame retardant auxiliary, by virtue of the particular blend ratio of phenol-biphenyl aralkyl epoxy resin of formula (2), Novolak type phenolic resin of formula (1) and silica particle, nor is such limitation inherent in JP '219.

Second, the teachings of the cited references are insufficient to combine the references in the first instance.

JP '219 teaches an epoxy resin composition comprising:

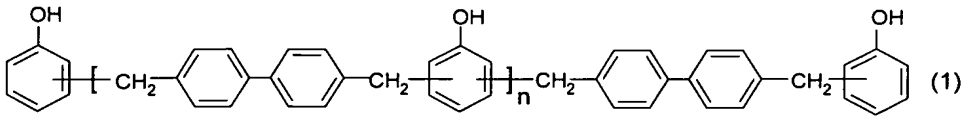
an epoxy resin (phenol-biphenyl aralkyl epoxy resin) represented by formula (2):



(2)

wherein n = 0 to 10,

a Novolak type phenolic resin represented by formula (1):



(1)

wherein n = 0 to 10, as an curing agent for said Epoxy resin, and

an inorganic filler in the content of 0 to 90 wt% in the total weight of the epoxy resin composition.

Further, JP '219 suggests such preferable embodiment where the ratio (OH/Ep) is chosen in the range of 0.7 to 1.2. JP '219 teaches just such advantage that the cured product from said epoxy resin composition will have good heat resistance, water resistance, toughness and mechanical strength.

In addition, JP '219 gives some suggestion about such general possibility that the phenol-biphenyl aralkyl epoxy resin may be used in combination with another epoxy resin including novolak type epoxy resin, bisphenol-A type epoxy resin, bisphenol-F type epoxy resin and biphenyl type epoxy resin.

However, JP '219 teaches nothing about whether or not the cured product from the aforementioned epoxy resin composition would exhibit good flame retardance without any help of flame retardant material or flame retardant auxiliary.

As for the objectives of JP '219, the main objective is clearly directed to an epoxy resin composition, which gives a

cured product being excellent in water resisting property and mechanical strength (toughness).

Additionally, paragraph 0003 of JP '219 contains such description "although thermal resistance becomes high in the cured product obtained when polyfunctional epoxy resins, such as a cresol novolak epoxy resin, are mixed, said cured product has such fault that toughness falls down and water absorption rise up". This description appears to indicate that use of polyfunctional epoxy resin may be unfit for the main aim of JP '219 to improve water resistance and toughness.

As the "tetraphenylolethane epoxy resin" of formula (3) is typical of polyfunctional epoxy resin, there would be somewhat good prediction that the cured product obtained with combinational use of "tetraphenylolethane epoxy resin" of formula (3) with the phenol-biphenyl aralkyl epoxy resin of formula (2) would exhibit comparable heat resistance to that of the cured product obtained with use of phenol-biphenyl aralkyl epoxy resin of formula (2).

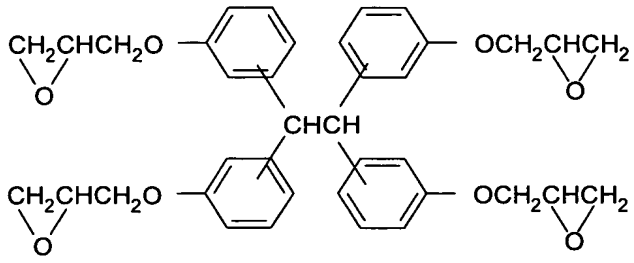
On the other hand, there is no reasonable basis to expect that the cured product obtained with use of "tetraphenylolethane epoxy resin" of formula (3) would show as good water resistance and toughness as the cured product obtained with use of phenol-biphenyl aralkyl epoxy resin of formula (2). The description of paragraph 0003 of JP '219 rather suggests that water absorption would increase and toughness would decrease in

case of using the "tetraphenylolethane epoxy resin" of formula (3) as well as use of polyfunctional epoxy resins such as a cresol novolak epoxy resin.

In this view, a person skilled in the art may think at least that such combinational use of "tetraphenylolethane epoxy resin" of formula (3) with the phenol-biphenyl aralkyl epoxy resin of formula (2) is not consistent with the purpose of JP '219 for obtaining the cured product being superior in water resistance and toughness.

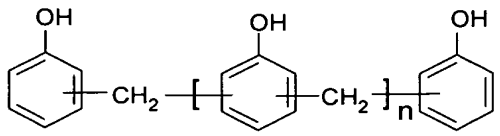
JP '814 & JP '581 teach a process for production of the "tetraphenylolethane epoxy resin" of formula (3) and typical advantage such that "tetraphenylolethane epoxy resin" is suitably employed as a raw material for epoxy resin composition that will gives a cured product having improved thermal properties such as heat distortion temperature and equivalent mechanical properties to that of cured product from epoxy resin composition containing conventional bifunctional epoxy resin.

In particular, JP '881 shows only an example of epoxy resin composition comprising 1,1,2,2-tetrakis(4-glycidyloxyphenyl)ethane (I):

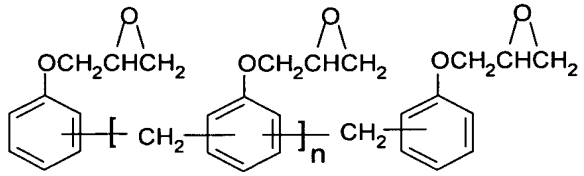


(I)

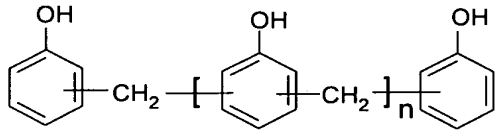
and phenol novolac resin:



, which epoxy resin composition gives a cured product having heat distortion temperature of 203 °C, in comparison with epoxy resin composition comprising Epikote 154 (i.e. phenol novolac epoxy resin):



and phenol novolac resin:



, which epoxy resin composition gives a cured product having heat distortion temperature of 136 °C. This example indicates that use of "tetraphenylolethane epoxy resin" is more suitable than use of phenol novolac epoxy resin such as Epikote 154 for obtaining a cured product having higher heat distortion temperature.

However, JP '814 & JP '581 teach nothing about any effect in relation with good water resistance (i.e. low water absorption) and toughness of cured product from epoxy resin composition containing such a "tetraphenylolethane epoxy resin".

Further, JP '814 & JP '581 teach nothing about any effect in relation with flame retardance of cured product from

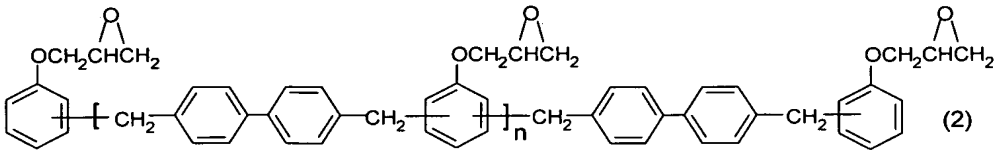
epoxy resin composition containing such a "tetraphenylolethane epoxy resin".

At least, JP '814 & JP '581 fail to provide any reasonable suggestion that use of "tetraphenylolethane epoxy resin" of formula (I) will give a cured product being excellent in water resistance and toughness. Thus, there is no reasonable predication that the inclusion of "tetraphenylolethane epoxy resin" in place of "cresol novolak epoxy resin" would be consistent with the objectives of JP 9-268219 to provide excellent water resistance and toughness for a cured product thereof.

Accordingly, JP '219 can not provide any motivation for combinational use of polyfunctional epoxy resins such as the "tetraphenylolethane epoxy resin" of formula (I) with the epoxy resin (phenol-biphenyl aralkyl epoxy resin) represented by formula (2), wherein the ratio of the tetraphenylolethane epoxy resin to phenolbiphenylaralkyl epoxy resin of formula (2) is no less than 1/5 in order to provide excellent water resistance and toughness for a cured product thereof.

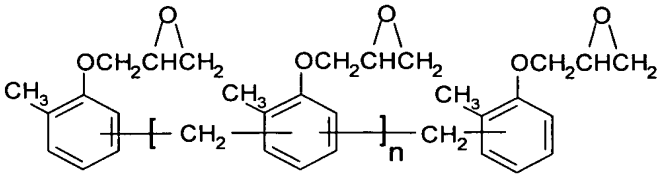
Third, the proposed combination of references is inconsistent with the stated motivation for combining with respect to the heat distortion temperature.

The epoxy resin (phenol-biphenyl aralkyl epoxy resin) represented by formula (2):



(2)

wherein n = 0 to 10, as well as the "cresol novolak epoxy resin":



are included in group of polyfunctional epoxy resins.

Therefore, use of epoxy resin (phenol-biphenyl aralkyl epoxy resin) represented by formula (2) may provide enough improvement with respect to the heat distortion temperature by itself. In such a case, there would be no need to further use the "tetraphenylolethane epoxy resin" of formula (I) in combination with the epoxy resin (phenol-biphenyl aralkyl epoxy resin) represented by formula (2) in order to obtain a cured product with high heat distortion temperature.

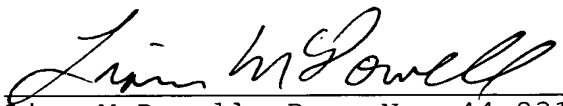
For the reasons set forth above, there is no evidence indicating that a cured product having good heat resistance will always exhibit good water resistance and toughness such that the references would not be combined in the manner suggested. Moreover, there is no evidence indicating that a cured product having good heat resistance, water resistance and toughness will always exhibit good flame retardance without any help of flame retardant material or flame retardant auxiliary.

Thus, it is believed to be apparent from the above discussion, to the extent that the skilled artisan might have considered the proposed combination of references together in the first instance, the invention of the present claims would not have been suggested. Reconsideration and withdrawal of the rejection are respectfully requested.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

YOUNG & THOMPSON



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